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Notice of Allowability

Application No.

10/600,259

Examiner

Thao P. Le

Applicant(s)

LUTZE ET AL.

Art Unit

2818

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 02/06/06.
2. ☒ The allowed claim(s) is/are 1-12, 18 and 19.
3. ☒ The drawings filed on 20 June 2003 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

DETAILED ACTION

1. This office action is in response to remark made on 02/06/06. The argument is fully considered.

Claims 1-12 and 18-23 are pending.

Information Disclosure Statement

2. The information disclosure statement (IDS) submitted on 02/06/06 was filed after the mailing date of the application. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Reason for allowance

3. **Claims 1-12, 18-23 are allowed.**
4. The following is an examiner's statement of reason for allowance:

a) **Set of claims 1-12:**

None of the references of record teaches or suggests the claimed limitations having a method of making an array of non-volatile memory cells on a semiconductor substrate surface comprising, among other steps cited in independent claim 1, the steps of forming an array of first floating gate portions across the substrate surface with a gate dielectric layer, forming second floating gate portions defined by the sidewall elements and contact

the first floating gate portion, and removing the sidewall elements thereby exposing surfaces of the first and second floating gate portions.

b) Set of claims 18-19:

None of the references of record teaches or suggests the claimed limitations having a method of making an array of non-volatile memory cells on a semiconductor substrate surface comprising, among other steps cited in independent claim 18, the steps of forming an array of first floating gate portions, forming second floating gate portions extending from first floating gate portions wherein each second floating gate portion extends along a plane perpendicular to the plane of the substrate surface and wherein the plane of the second floating gate portion bisects the first floating gate portion, and the second floating gate portion being self-aligned to the first floating gate portion.

c) Set of claims 20-23:

None of the references of record teaches or suggests the claimed limitations having a method of forming a non-volatile memory cells on a semiconductor substrate surface comprising, among other steps cited in independent claim 20, the steps of forming a layer of floating gate material extending across the layer of gate dielectric, forming shallow trench isolation structures that divide the layer of floating gate material into strips and extend in one direction, forming spacers along sidewalls of the second masking strips which extending in the second direction wherein the spacers overlying the first floating gate portions, and then forming second floating gate portions by filling gaps between spacers of adjacent second masking strips.

5. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance".

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thao P. Le whose telephone number is 571-272-1785. The examiner can normally be reached on M-T (7-6).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached on 571-272-1787. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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A handwritten signature in black ink, appearing to read 'Thao P. Le', written in a cursive style.

Thao P. Le

Examiner

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April 18, 2006.